

M 32 29.05.00

CLAIMS

1. A cell transformed *in vitro* comprising a vector, the vector comprising a promoter operatively linked to a polynucleotide sequence encoding a fusion protein comprising immunostimulatory cell surface polypeptide linked at the amino terminus to second cell surface polypeptide, wherein the second cell surface polypeptide comprises a transmembrane region, wherein upon expression, the fusion protein is expressed on the cell surface.

5

2. The transformed cell of claim 1, wherein the immunostimulatory cell surface polypeptide

10

(a) activates phagocytes; but

(b) does not fix complement.

15

3. The transformed cell of claim 1, wherein the cell is human.

4. The transformed cell of claim 1, wherein the cell is rodent.

20

5. The transformed cell of claim 4, wherein the rodent cell is a hamster cell.

6. The transformed cell of claim 1, wherein the immunostimulatory cell surface polypeptide is a region of IgG.

25

7. The transformed cell of claim 6, wherein the region of IgG is Fc.

8. The transformed cell of claim 1, wherein the second cell surface polypeptide is a transferrin receptor hinge region.

30

9. A recombinant polynucleotide comprising a promoter operably linked with a polynucleotide coding for an immunostimulatory cell surface polypeptide, wherein the immunostimulatory cell surface polypeptide:

(a) activates phagocytes; but

(b) does not fix complement.

33 29.000.00

10. An immunostimulatory cell surface polypeptide, comprising a cell surface Fc expressed in reverse orientation to the cell surface.
11. The immunostimulatory cell surface polypeptide of claim 10, wherein the polypeptide further comprises a second cell surface polypeptide.
12. The immunostimulatory cell surface polypeptide of claim 11, wherein the second cell surface polypeptide is a transferrin receptor hinge region.
13. A screening method for testing phagocytes for response to an immunostimulatory cell surface polypeptide, comprising:
- contacting a phagocyte *in vitro* with a transformed cell expressing the immunostimulatory cell surface polypeptide in reverse orientation to the cell surface; and
 - comparing the phagocytic activity of the phagocyte as compared with control phagocyte, wherein increased phagocytic activity indicates that the phagocyte responds to the immunostimulatory cell surface polypeptide in reverse orientation to the cell surface.
14. A method for identifying an agent that modulates phagocyte response to an immunostimulatory cell surface polypeptide, comprising:
- contacting a phagocyte *in vitro* with a transformed cell expressing the immunostimulatory cell surface polypeptide in reverse orientation to the cell surface;
 - contacting a phagocyte *in vitro* with a test agent and the transformed cell expressing the immunostimulatory cell surface polypeptide in reverse orientation to the cell surface; and
 - comparing the phagocytic activity of the phagocyte in the absence of the test agent with the phagocytic activity of the phagocyte in the presence of the test agent, wherein a change in the phagocytic activity indicates that the test agent modulates phagocyte response to the immunostimulatory cell surface polypeptide in reverse orientation to the cell surface.

34 20.05.00

15. A method for identifying an agent that preferentially binds to a cell surface orientation of an immunostimulatory cell surface polypeptide, comprising:
 - (a) contacting a test agent *in vitro* with a transformed cell expressing the immunostimulatory cell surface polypeptide in a type I cell surface protein;
 - (b) contacting the test agent *in vitro* with a transformed cell expressing the immunostimulatory cell surface polypeptide in reverse orientation; and
 - (c) comparing the effect of contacting the test agent with a transformed cell expressing the immunostimulatory cell surface polypeptide in a type I cell surface protein with the effect of contacting the test agent with a transformed cell expressing the immunostimulatory cell surface polypeptide in reverse orientation, wherein a change in effect indicates that the test agent preferentially binds to the cell surface orientation of the immunostimulatory cell surface polypeptide.
16. A method for stimulating phagocyte activity, comprising:
 - administering to the host a transformed cell containing a recombinant polynucleotide comprising a promoter operably linked with a polynucleotide coding for an immunostimulatory cell surface polypeptide, wherein the immunostimulatory cell surface polypeptide
 - (a) activates phagocytes; but
 - (b) does not fix complement,wherein the administration of the transformed cell stimulates phagocyte activity by the phagocyte.
17. The method of claim 16, wherein the phagocyte is a macrophage.
18. The method of claim 16, wherein the phagocyte is a macrophagic tumor cell.
19. The method of claim 16, wherein the transformed cell comprises a therapeutic compound.
20. The method of claim 16, wherein the transformed cell is administered to the host central nervous system.

11 35 29.05.00

21. A method for modulating a host immune response, comprising:
administering to the host a transformed cell containing a recombinant polynucleotide comprising a promoter operably linked with a polynucleotide coding for an immunostimulatory cell surface polypeptide,
wherein the administration stimulates a host immune response to the transformed cell.
22. The method of claim 21, wherein the cell expresses, on the cell surface, a second antigen, such that the host produces an immune response against the second antigen.
23. The method of claim 22, wherein the cell expresses the second antigen from a recombinant polynucleotide.
24. A method for ablating target cells from a host, comprising:
(a) introducing into the target cell a recombinant polynucleotide comprising a promoter operably linked with a polynucleotide coding for an immunostimulatory cell surface polypeptide, wherein the immunostimulatory cell surface polypeptide
20 (i) activates phagocytes; but
(ii) does not fix complement;
(b) expressing the immunostimulatory cell surface polypeptide in the target cell,
wherein the target cell is in the host;
25 wherein the expression of the immunostimulatory cell surface polypeptide by the target cell in a host induces a host phagocyte-mediated ablation of the target cell.
25. The method of claim 24, wherein the cells are tumor cells.
26. The method of claim 24, wherein the expression of the immunostimulatory cell surface polypeptide is constitutive.
- 30 27. The method of claim 24, wherein the expression of the immunostimulatory cell surface polypeptide is induced.

P 136 29.05.00

28. A method for treating an autoimmune disorder in a host, comprising:
- (a) administering, to a host with an autoimmune disorder, transformed cells containing a recombinant polynucleotide comprising a promoter operably linked with a polynucleotide coding for an immunostimulatory cell surface polypeptide;
- (b) expressing a therapeutically effective amount of immunostimulatory cell surface polypeptide from the recombinant polypeptide;
- (c) contacting phagocytes with the immunostimulatory cell surface polypeptide, wherein the contacted phagocytes modulate the autoreactive T-cells to reduce T-cell autoreactivity in the host.
29. A composition comprising:
- (a) a core comprising a transformed cell containing a recombinant polynucleotide comprising a promoter operably linked with a polynucleotide coding for an immunostimulatory cell surface polypeptide that is capable of stimulating an immune response against the cell in a host; and
- (b) a jacket surrounding the core, the jacket comprising a permselective membrane.
30. A method for delivering a biologically active molecule to a patient, comprising: implanting the patient with a capsule, the capsule having:
- (a) a core comprising a transformed cell containing a recombinant polynucleotide comprising a promoter operably linked with a polynucleotide coding for an immunostimulatory cell surface polypeptide that is capable of stimulating an immune response against the cell in a host; and
- (b) a jacket surrounding the core, the jacket comprising a permselective membrane,
- wherein the transformed cell secretes a biologically active molecule from the capsule.